

PRESS RELEASE

5 SEPTEMBER 2018 | FOR IMMEDIATE RELEASE

Stronger chemotherapy for children with high-risk leukaemia boosts cure, reduces relapse rates

Singapore, 5 September 2018 — A team of doctors from Singapore and Malaysia has managed to raise cure rates for a group of child leukemia patients from 69.6 per cent to 91.6 per cent while also lowering relapses from 30 per cent to 13 per cent.

The 346 children in both countries have a type of high-risk acute lymphoblastic leukaemia (ALL) that is linked to special features in their genes. Their leukaemia cells were found to be without the Ikaros gene (a development referred to as Ikaros deletion). They responded better to intensified chemotherapy treatment – 91 per cent were cured of their illness. Another group of high risk patients whose leukaemia carried the Philadelphia chromosome also received intensified chemotherapy treatment as well as a drug called imatinib.

“The Holy Grail in cancer treatment is to pick up children who are more likely to relapse on standard therapy and give them better treatment. The Ikaros gene allows normal cells to mature into functional cells. About 20 per cent of children with ALL lose the Ikaros gene in their leukaemia cells, which do not mature. The leukaemia cells are stuck in an immature and constantly growing state. These children therefore have more than double the chance of relapse at 30 per cent, compared to 13 per cent in those who do not have Ikaros gene deletion,” said Associate Professor Allen Yeoh of the Department of Paediatrics at the National University of Singapore Yong Loo Lin School of Medicine. Together with Associate Professor Tan Ah Moy of the KK Women’s and Children’s Hospital (KKH) and Professor Hany Ariffin from the University of Malaya, the three doctors studied the peculiarities of these children’s leukemia and developed a new treatment protocol that turned out to be successful. Their findings were published online in July in the *Journal of Clinical Oncology*.

Childhood ALL is the most common form of cancer in children and affects three out of every 10 children who are diagnosed in Singapore annually. The current cure rates for children with ALL stands at 88 per cent in Singapore, and 50 to 85 per cent worldwide. The two-country study is also the first in the world to prospectively show that intensifying therapy for Ikaros gene-deleted children with ALL reduces relapse and improves treatment outcome.

The study, named the Malaysia-Singapore (Ma-Spore) ALL 2010, is a collaboration that involved a total of 346 patients from four hospitals in Singapore and Malaysia – the National University Hospital (NUH), KKH, University of Malaya Medical Centre and Sime Darby Medical Centre (SDMC) in Subang Jaya. The work builds on an earlier 2003 study by the team, which had found that reducing the amount of chemotherapy for paediatric ALL patients led to better outcomes, with a cure rate of 80.6 per cent. However, better solutions were still needed for children with high-risk disease. This led to the findings of the current study.

Although the Ma-Spore study group is only 15 years old and small compared to most cooperative groups, it has contributed important knowledge in the treatment of children with leukaemia, including two important papers in the Journal of Clinical Oncology. In their work, the Ma-Spore team explores critical treatment issues in cost-effective therapy that are important for Singapore and Malaysia, including that of Asian sensitivity to chemotherapy drugs.

“Ma-Spore success is possible because of our unique collaboration, bringing together the many leaders in childhood ALL therapy in Singapore and Malaysia to focus on unique gaps, funded both by government and charity,” Assoc Prof Yeoh added. He is also Head and Senior Consultant at the Division of Paediatric Haematology-Oncology, at the NUH and National University Cancer Institute, Singapore.

Prof Hany Ariffin, who heads the Paediatric Haematology-Oncology and Bone Marrow Transplantation Unit of the University of Malaya Medical Centre in Kuala Lumpur, is proud of the many achievements of the Ma-Spore group. “In addition to the impressive gains in survival rates, the collaboration has also facilitated transfer of knowledge and technology to the team in University of Malaya. This has allowed many children to receive sophisticated personalised leukaemia therapy, irrespective of their socio-economic standing.” Like Assoc Prof Yeoh, she strongly believes in equitable health care for all children with cancer.

The study is funded by the Singapore Ministry of Health’s National Medical Research Council Clinician Scientist Investigator Awards, Cancer Science Institute of Singapore, Children’s Cancer Foundation and Viva Foundation for Children with Cancer. Meanwhile, patients in Malaysia are also supported by research grants from University of Malaya as well as charities.

The team is now working on a new study, Ma-Spore ALL 2020, which will explore further tailoring treatment to optimise the treatment outcome of the children who are expected to fare worse. “The ultimate aim is a complete cure,” said Assoc Prof Yeoh.

“With better tools to study the leukaemia cells and better ways to treat high risk cases, we will be able to identify those who will relapse early, so that we can intervene and cure them.”

For media enquiries, please contact:

WANG Simin
Assistant Manager, Communications
Yong Loo Lin School of Medicine
National University of Singapore
DID: +65 6772 7804
Mobile: +65 9625 3710
Email: wangsimin@nus.edu.sg

About the National University of Singapore (NUS)

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 17 Faculties and Schools across three campuses. Its transformative education includes a broad-based curriculum underscored by multidisciplinary courses and cross-faculty enrichment. Over 38,000 students from 100 countries enrich the community with their diverse social and cultural perspectives. NUS also strives to create a supportive and innovative environment to promote creative enterprise within its community.

NUS takes an integrated and multidisciplinary approach to research, working with partners from industry, government and academia, to address crucial and complex issues relevant to Asia and the world. Researchers in NUS' Faculties and Schools, 30 university-level research institutes and centres, and Research Centres of Excellence cover a wide range of themes including: energy, environmental and urban sustainability; treatment and prevention of diseases common among Asians; active ageing; advanced materials; risk management and resilience of financial systems. The University's latest research focus is to use data science, operations research and cybersecurity to support Singapore's Smart Nation initiative.

For more information on NUS, please visit www.nus.edu.sg.

About the NUS Yong Loo Lin School of Medicine (NUS Medicine)

Established in 1905, the NUS Yong Loo Lin School of Medicine is the first institution of higher learning in Singapore and the genesis of the National University of Singapore.

The School offers one of the finest undergraduate medical programmes in the Asia Pacific region and enjoys international recognition and respect. The Times Higher Education World University Rankings 2018 by subject and Quacquarelli Symonds (QS) World University Rankings by Subject 2017 list NUS Medicine as a leading medical school in Asia.

It admits 300 students to the MBBS degree programme annually and its principal missions are to educate and train the next generation of healthcare professionals, and foster research that will help to advance the practice of medicine.

The 18 NUS Medicine departments in the basic sciences and clinical specialties work closely with the Centre for Medical Education, the Centre for Biomedical Ethics, the Centre for Healthcare Simulation as well as the restructured public hospitals to ensure that teaching and research are aligned and relevant to Singapore's healthcare needs. The School is a founding institutional member of the National University Health System.

For more information about NUS Medicine, please visit <http://nusmedicine.nus.edu.sg>.